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# CLAYTOR LAKE, PULASKI COUNTY, VIRGINIA

PACIFIC NORTHWEST ENVIRONMENTAL
RESEARCH LABORATORY

PREPARED FOR
NATIONAL ENVIRONMENTAL RESEARCH CENTER

JUNE 1975

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

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# U.S. ENVIRONMENTAL PROTECTION AGENCY
# NATIONAL EUTROPHICATION SURVEY
## WORKING PAPER SERIES

REPORT

ON

CLAYTOR LAKE

PULASKI COUNTY

VIRGINIA

EPA REGION III

WORKING PAPER No. 460

PACIFIC NORTHWEST ENVIRONMENTAL RESEARCH LABORATORY

An Associate Laboratory of the

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and

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# REPORT
# ON
# CLAYTOR LAKE
# PULASKI COUNTY
# VIRGINIA
# EPA REGION III
# WORKING PAPER No. 460

WITH THE COOPERATION OF THE
VIRGINIA STATE WATER CONTROL BOARD
AND THE
VIRGINIA NATIONAL GUARD
JUNE, 1975

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# FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

## OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

## ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

## LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Virginia State Water Control Board for professional involvement and to the Virginia National Guard for conducting the tributary sampling phase of the Survey.

Eugene T. Jensen, Executive Secretary of the State Water Control Board; Michael A. Bellanca, Director; Jean W. Gregory, Pollution Control Specialist; and Robert W. Pitchford, Pollution Control Technician; Bureau of Surveillance and Field Studies; provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports, and provided critiques most useful in the preparation of this Working Paper series.

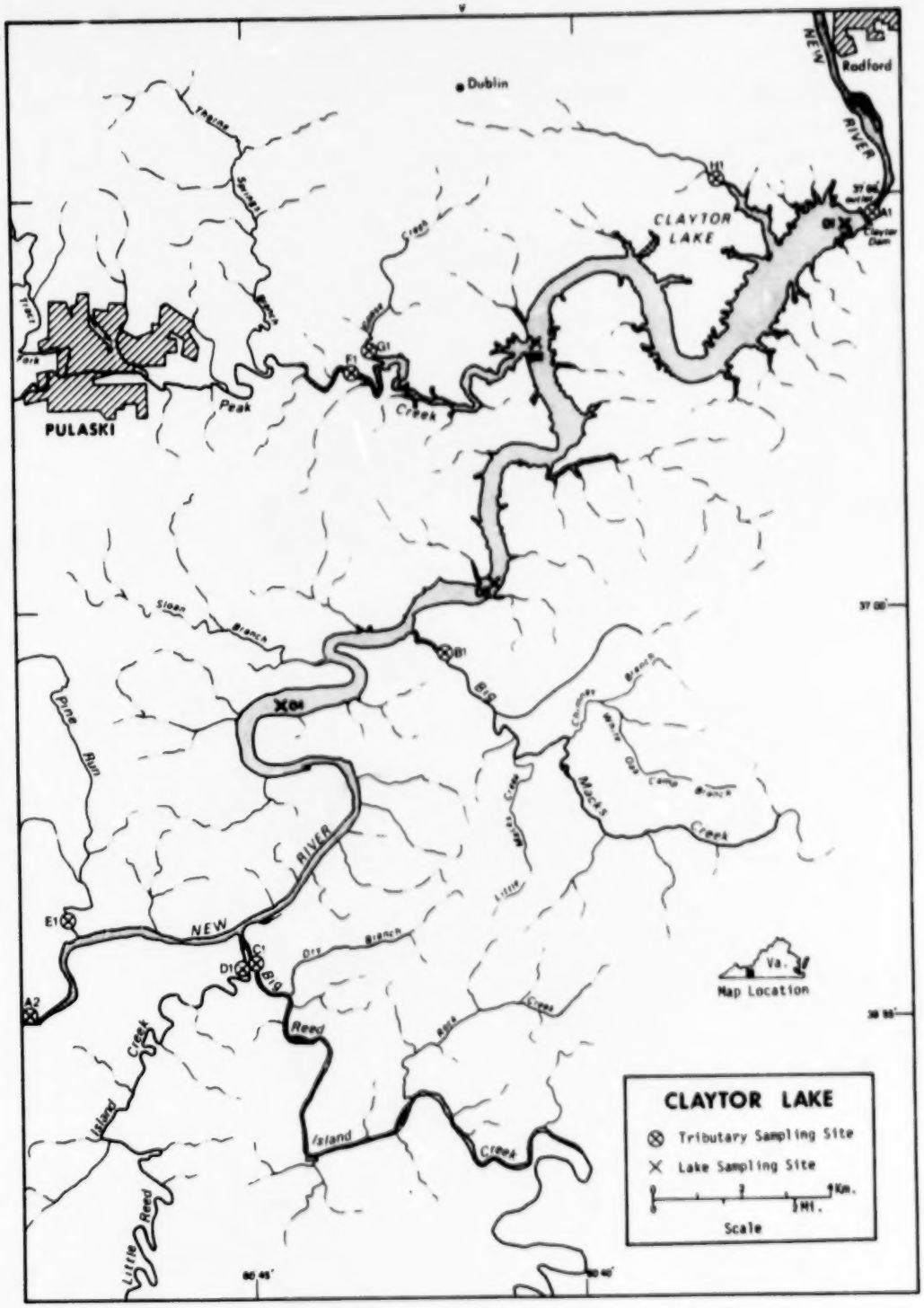
Major General William J. McCaddin, the Adjutant General of Virginia, and Project Officer Lt. Colonel James D. Manley, who directed the volunteer efforts of the Virginia National Guardsmen, also are gratefully acknowledged for their assistance to the Survey.

# NATIONAL EUTROPHICATION SURVEY

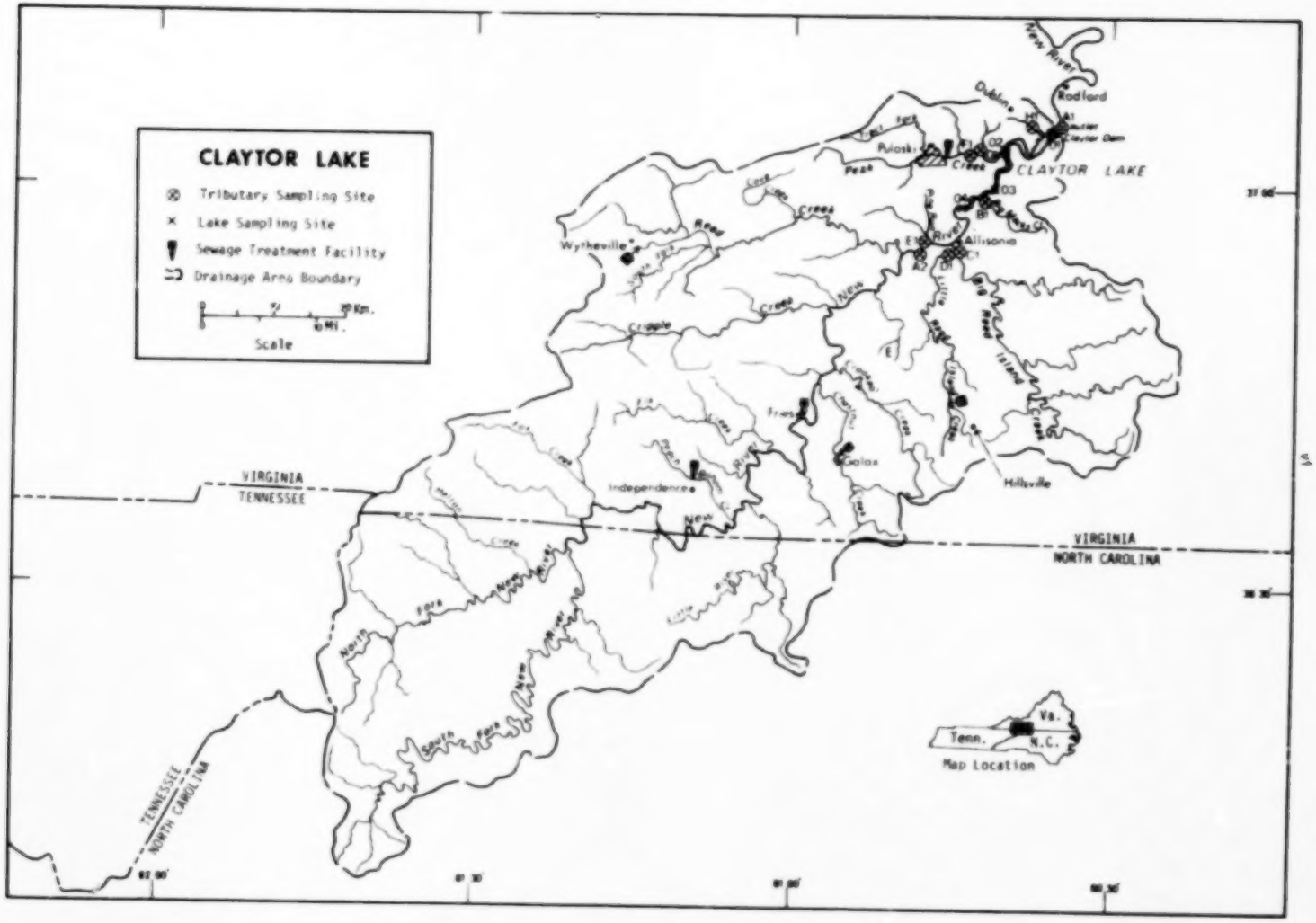
## STUDY LAKES

## STATE OF VIRGINIA

| LAKE NAME | COUNTY |
|---|---|
| Bluestone | Giles, VA; Mercer, Monroe, Summers, WV |
| Chesdin | Amelia, Chesterfield, Dinwiddie |
| Chickahominy | Charles City, New Kent |
| Claytor | Pulaski |
| J. H. Kerr | Charlotte, Hallifax, Micklenburg, VA; Granville, Vance, Warren, NC |
| J. W. Flannagan | Dickenson |
| Occoquan | Fairfax, Prince William |
| Rivanna | Albemarle |
| Smith Mountain | Bedford, Franklin, Pittsylvania |



Dublin
Radford
NEW RIVER
CLAYTOR LAKE
Clayton Dam
PULASKI
Peak Creek
Sloan Branch
Big Macks Creek
Pine Run
NEW RIVER
Big Reed Island Creek
Island Creek
Little Reed
Dry Branch
Rock Creek
Little Macks Creek
Chimney Branch
White Oak Camp Branch
Va.
Map Location
CLAYTOR LAKE
Tributary Sampling Site
Lake Sampling Site
Km.
Mi.
Scale


CLAYTOR LAKE
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
Drainage Area Boundary
Scale
CLAYTOR LAKE
Radford
Dublin
Pulaski
Allisonia
Wytheville
Fries
Galax
Independence
Hillsville
VIRGINIA
TENNESSEE
VIRGINIA
NORTH CAROLINA
TENNESSEE
NORTH CAROLINA
Tenn.
Va.
N.C.
Map Location

CLAYTOR LAKE

STORET NO. 5103

# I. CONCLUSIONS

## A. Trophic Condition:

Survey data indicate that Claytor Lake is eutrophic. It ranked third in overall trophic quality when the eight Virginia lakes sampled in 1973 were compared using a combination of six parameters*. Two of the lakes had less median total phosphorus, two had less and one had the same median dissolved phosphorus, five had less median inorganic nitrogen, none had less mean chlorophyll a, and two had greater mean Secchi disc transparency. Marked depression of dissolved oxygen with depth occurred at stations 1, 2, and 3 in July and at stations 1 and 2 in September.

Survey limnologists did not observe algae or other aquatic vegetation but did note much surface debris.

Previous investigators have reported periodic blue-green algae blooms in Peak Creek and Claytor Lake (Gregory, 1973).

## B. Rate-Limiting Nutrient:

The algal assay results indicate that Claytor Lake was phosphorus limited at the time the sample was collected (04/04/73). The lake data indicate phosphorus limitation at the other sampling times as well.

## C. Nutrient Controllability:

1. Point sources--The phosphorus contribution of known point sources amounted to 19.0% of the total input to Claytor Lake during

* See Appendix A.

the sampling year. Contributing point sources include the sewage treatment facilities in Pulaski (6.0%), Galax (5.4%), Wytheville (3.7%), Independence (2.1%), Fries (1.0%), and Hillsville (0.7%). Lakeshore septic tanks were estimated to have contributed 0.1% of the total load. In addition, three industrial point sources of unknown nutrient significance discharge within the drainage basin (see page 10).

The high nutrient export rates of Peak Creek and Unnamed Stream H-1 indicate that the contributions attributed to point sources may be too low (see discussion below).

The present phosphorus loading of 10.06 $g/m^2/yr$ is over four times that proposed by Vollenweider (Vollenweider and Dillon, 1974) as a eutrophic loading (see page 14). While even complete removal of phosphorus at the listed point sources would only reduce the overall loading to 8.15 $g/m^2/yr$, Claytor Lake is phosphorus-limited, and all phosphorus inputs should be minimized to the greatest practicable extent to slow the aging of this water body.

2. Non-point sources--Over 80% of the total phosphorus load to Claytor Lake was from non-point sources. The New River contributed 69.4%, Big Reed Island Creek contributed 5.1%, Peak Creek contributed 4.0%, and five other gauged tributaries collectively contributed 1.5% of the load. Minor tributaries and immediate drainage were estimated to have contributed 0.8% of the load.

The phosphorus export rates of Peak Creek (34 $kg/km^2/yr$), Unnamed Stream H-1 (35 $kg/km^2/yr$), and New River (28 $kg/km^2/yr$) were somewhat higher than the rates of the other tributaries in the drainage (see page 13). The higher rates of Peak Creek and Unnamed Stream H-1 may be due to additional unsampled point sources or to underestimation of the nutrient loads from the known point sources.

The high export rate of the New River also may be due to unsampled point sources but probably is due to agricultural and urban runoff (Gregory, 1974). Note that the phosphorus load in the New River alone is large enough to result in an overall loading of 6.98 $g/m^2/yr$, or almost three times Vollenweider's eutrophic loading, and any significant improvement in the trophic condition of Claytor Lake would require a marked reduction of the New River phosphorus load.

## II. LAKE AND DRAINAGE BASIN CHARACTERISTICS†

### A. Lake Morphometry††:

1. Surface area: 18.19 kilometers$^2$.
2. Mean depth: 29.0 meters.
3. Maximum depth: >35.0 meters.
4. Volume: 527.510 x $10^6$ $m^3$.
5. Mean hydraulic retention time: 63 days (based on outflow).

### B. Tributary and Outlet:
(See Appendix C for flow data)

1. Tributaries -

| Name | Drainage area ($km^2$)* | Mean flow ($m^3$/sec)* |
|---|---|---|
| New River | 4,763.0 | 83.1 |
| Big Macks Creek | 48.4 | 0.4 |
| Big Reed Island Creek | 673.4 | 8.2 |
| Little Reed Island Creek | 216.3 | 2.0 |
| Pine Run | 38.3 | 0.3 |
| Peak Creek | 220.4 | 2.0 |
| Goose Creek | 9.3 | 0.1 |
| Unnamed Stream H-1 | 9.6 | 0.1 |
| Minor tributaries & immediate drainage - | 141.4 | 1.6 |
| Totals | 6,120.1 | 97.8 |

2. Outlet -

| | | |
|---|---|---|
| New River | 6,138.3** | 97.5 |

### C. Precipitation***:

1. Year of sampling: 122.7 centimeters.
2. Mean annual: 94.0 centimeters.

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† Table of metric conversions--Appendix B.
†† Bellanca, 1975.
* For limits of accuracy, see Working Paper No. 175, "...Survey Methods, 1973-1976".
** Includes area of lake.
*** See Working Paper No. 175.

## III. LAKE WATER QUALITY SUMMARY

Claytor Lake was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from four stations on the lake and from two or more depths at each station (see map, page v). During each visit, a single depth-integrated (4.6 m or near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the first visit, a single 18.9-liter depth-integrated sample was composited for algal assays. Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll a analysis. The maximum depths sampled were 35.0 meters at station 1, 24.4 meters at station 2, 13.1 meters at station 3, and 3.0 meters at station 4.

The sampling results are presented in full in Appendix D and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR CLAYTON LAKE
STORET CODE 5103

| PARAMETER | 1ST SAMPLING ( 4/ 4/73) 4 SITES RANGE | MEAN | MEDIAN | 2ND SAMPLING ( 7/16/73) 4 SITES RANGE | MEAN | MEDIAN | 3RD SAMPLING ( 9/27/73) 4 SITES RANGE | MEAN | MEDIAN |
|---|---|---|---|---|---|---|---|---|---|
| TEMP (C) | 8.2 - 13.6 | 11.5 | 11.9 | 11.5 - 27.5 | 23.5 | 25.1 | 12.3 - 23.6 | 21.6 | 23.1 |
| DISS OXY (MG/L) | 9.4 - 9.8 | 9.6 | 9.5 | 0.2 - 8.6 | 4.7 | 5.6 | 0.1 - 8.0 | 4.5 | 5.6 |
| CNDCTVY (MCROMO) | 88. - 135. | 95. | 92. | 53. - 241. | 87. | 84. | 17. - 120. | 96. | 100. |
| PH (STAND UNITS) | 7.7 - 7.9 | 7.7 | 7.7 | 6.7 - 9.4 | 7.6 | 7.5 | 6.6 - 7.5 | 7.0 | 7.0 |
| TOT ALK (MG/L) | 25. - 36. | 30. | 30. | 22. - 49. | 33. | 30. | 28. - 74. | 39. | 36. |
| TOT P (MG/L) | 0.030 - 0.068 | 0.041 | 0.040 | 0.012 - 0.064 | 0.029 | 0.022 | 0.014 - 0.089 | 0.027 | 0.021 |
| ORTHO P (MG/L) | 0.008 - 0.019 | 0.011 | 0.010 | 0.003 - 0.010 | 0.005 | 0.004 | 0.005 - 0.049 | 0.009 | 0.007 |
| NO2+NO3 (MG/L) | 0.600 - 0.770 | 0.684 | 0.685 | 0.080 - 0.690 | 0.302 | 0.290 | 0.030 - 0.350 | 0.178 | 0.160 |
| AMMONIA (MG/L) | 0.050 - 0.120 | 0.082 | 0.080 | 0.050 - 0.580 | 0.135 | 0.080 | 0.040 - 1.350 | 0.222 | 0.060 |
| KJEL N (MG/L) | 0.200 - 0.500 | 0.311 | 0.300 | 0.200 - 0.900 | 0.388 | 0.400 | 0.200 - 1.800 | 0.533 | 0.400 |
| INORG N (MG/L) | 0.660 - 0.860 | 0.766 | 0.770 | 0.160 - 0.900 | 0.437 | 0.380 | 0.120 - 1.380 | 0.400 | 0.250 |
| TOTAL N (MG/L) | 0.820 - 1.240 | 0.996 | 0.980 | 0.300 - 1.220 | 0.690 | 0.610 | 0.360 - 1.840 | 0.711 | 0.605 |
| CHLRPYL A (UG/L) | 1.0 - 3.0 | 1.8 | 1.7 | 3.3 - 8.7 | 6.0 | 5.9 | 3.3 - 15.3 | 9.1 | 8.9 |
| SECCHI (METERS) | 0.6 - 0.9 | 0.7 | 0.7 | 0.9 - 2.7 | 2.1 | 2.4 | 0.8 - 2.6 | 1.7 | 1.8 |

B. Biological characteristics:

1. Phytoplankton -

| Sampling Date | Dominant Genera | Algal Units per ml |
|---|---|---|
| 04/04/73 | 1. Flagellates | 490 |
| | 2. *Fragilaria sp.* | 306 |
| | 3. *Scenedesmus sp.* | 215 |
| | 4. *Synedra sp.* | 184 |
| | 5. *Tetraedon sp.* | 122 |
| | Other genera | 488 |
| | Total | 1,805 |
| 07/16/73 | 1. Flagellates | 1,947 |
| | 2. *Navicula sp.* | 201 |
| | 3. *Nitzchia sp.* | 113 |
| | 4. *Cymbella sp.* | 88 |
| | 5. *Dinobryon sp.* | 63 |
| | Other genera | 302 |
| | Total | 2,714 |
| 09/27/73 | 1. Flagellates | 801 |
| | 2. *Aphanizomenon sp.* | 272 |
| | 3. *Synedra sp.* | 256 |
| | 4. *Fragilaria sp.* | 256 |
| | 5. *Dactylococcopsis sp.* | 96 |
| | Other genera | 225 |
| | Total | 1,906 |

2. Chlorophyll *a* -

| Sampling Date | Station Number | Chlorophyll *a* (μg/l) |
|---|---|---|
| 04/04/73 | 01 | 2.3 |
| | 02 | 1.0 |
| | 03 | 1.1 |
| | 04 | 3.0 |
| 07/16/73 | 01 | 3.3 |
| | 02 | 3.9 |
| | 03 | 8.0 |
| | 04 | 8.7 |
| 09/27/73 | 01 | 5.2 |
| | 02 | 12.6 |
| | 03 | 15.3 |
| | 04 | 3.3 |

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

| Spike (mg/l) | Ortho P Conc. (mg/l) | Inorganic N Conc. (mg/l) | Maximum yield (mg/l-dry wt.) |
|---|---|---|---|
| Control | 0.015 | 0.702 | 1.1 |
| 0.050 P | 0.065 | 0.702 | 15.3 |
| 0.050 P + 1.0 N | 0.065 | 1.702 | 19.0 |
| 1.0 N | 0.015 | 1.702 | 1.8 |

2. Discussion -

The control yield of the assay alga, Selenastrum capricornutum, indicates that the potential primary productivity of Claytor Lake was moderately high at the time the sample was collected (04/04/73). A significant increase in yield resulted from the addition of orthophosphorus, but no such increase occurred when only nitrogen was added. These results indicate phosphorus limitation.

The lake data substantiate phosphorus limitation. The mean inorganic nitrogen/orthophosphorus ratios were 20/1 or greater at all sampling stations and times, and phosphorus limitation would be expected.

## IV. NUTRIENT LOADINGS
(See Appendix E for data)

For the determination of nutrient loadings, the Virginia National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the maps (pages v and vi). Sampling was begun in July, 1973, and was completed in June, 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Virginia District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a U.S. Geological Survey computer program for calculating stream loadings*. Nutrient loads shown are those measured minus point-source loads, if any.

Nutrient loads for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated using the means of the nutrient loads, in $kg/km^2/year$, at stations B-1, C-1, E-1, and G-1 and multiplying the means by the ZZ area in $km^2$.

The operators of the Pulaski, Galax, and Independence wastewater treatment plants provided monthly effluent samples and corresponding flow data. The operator of the Fries wastewater treatment plant also provided monthly effluent samples but only estimated flow data. The operators of the wastewater treatment plants at Hillsville and Wytheville did not participate, and nutrient loads from these sources were estimated

* See Working Paper No. 175.

at 1.134 kg P and 3.401 kg N/capita/year.

A. Waste Sources:

1. Known municipal† -

| Name | Pop. Served | Treatment | Mean Flow ($m^3$/d) | Receiving Water |
|---|---|---|---|---|
| Fries | 867 | septic tank | 696.5 | New River |
| Pulaski | 10,500 | tr. filter | 5,100.1 | Peak Creek |
| Galax | 8,000 | tr. filter | 4,088.2 | Chestnut Creek |
| Independence | 200 | lagoon | 402.8 | Peach Bottom Creek |
| Hillsville* | 1,149 | lagoon | 434.9 | Little Reed Island Creek |
| Wytheville* | 6,069 | prim. clarifier | 2,297.1 | Atkins Mill Branch/Reed Creek |

2. Known industrial** -

| Name | Product | Treatment | Mean Flow ($m^3$/d) | Receiving Water |
|---|---|---|---|---|
| Klopman Mills | - | ? | - | ? |
| New Jersey Zinc | - | ? | - | ? |
| Pet Milk | - | ? | - | ? |

† Treatment plant questionnaires.
* Anonymous, 1971 (population is 1970 census; flow estimated at 0.3785 $m^3$/capita/day).
** Gregory, 1974.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

| Source | kg P/ yr | % of total |
|---|---|---|
| a. Tributaries (non-point load) - | | |
| New River | 127,025 | 69.4 |
| Big Macks Creek | 290 | 0.2 |
| Big Reed Island Creek | 9,415 | 5.1 |
| Little Reed Island Creek | 1,605 | 0.9 |
| Pine Run | 225 | 0.1 |
| Peak Creek | 7,385 | 4.0 |
| Goose Creek | 135 | 0.1 |
| Unnamed Stream H-1 | 335 | 0.2 |
| b. Minor tributaries & immediate drainage (non-point load) - | 1,450 | 0.8 |
| c. Known municipal STP's - | | |
| Fries | 1,805 | 1.0 |
| Pulaski | 11,055 | 6.0 |
| Galax | 9,825 | 5.4 |
| Independence | 3,860 | 2.1 |
| Hillsville | 1,305 | 0.7 |
| Wytheville | 6,880 | 3.7 |
| d. Septic tanks* - | 145 | 0.1 |
| e. Known industrial - | | |
| Klopman Mills | ? | - |
| New Jersey Zinc | ? | - |
| Pet Milk | ? | - |
| f. Direct precipitation** - | 320 | 0.2 |
| Total | 183,060 | 100.0 |

2. Outputs -

Lake outlet - New River 89,960

3. Net annual P accumulation - 93,100 kg.

* Estimate based on 496 lakeshore dwellings, one park, and one camp; see Working Paper No. 175.

** See Working Paper No. 175.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

| Source | kg N/ yr | % of total |
|---|---|---|
| a. Tributaries (non-point load) - | | |
| New River | 2,211,795 | 82.4 |
| Big Macks Creek | 5,775 | 0.2 |
| Big Reed Island Creek | 141,890 | 5.3 |
| Little Reed Island Creek | 48,700 | 1.8 |
| Pine Run | 13,585 | 0.5 |
| Peak Creek | 100,120 | 3.7 |
| Goose Creek | 5,090 | 0.2 |
| Unnamed Stream H-1 | 3,340 | 0.1 |
| b. Minor tributaries & immediate drainage (non-point load) - | 43,480 | 1.6 |
| c. Known municipal STP's - | | |
| Fries | 6,715 | 0.3 |
| Pulaski | 24,885 | 0.9 |
| Galax | 27,680 | 1.0 |
| Independence | 2,820 | 0.1 |
| Hillsville | 3,910 | 0.2 |
| Wytheville | 20,640 | 0.8 |
| d. Septic tanks* - | 5,390 | 0.2 |
| e. Known industrial - | | |
| Klopman Mills | ? | - |
| New Jersey Zinc | ? | - |
| Pet Milk | ? | - |
| f. Direct precipitation** - | 19,640 | 0.7 |
| Total | 2,685,455 | 100.0 |

2. Outputs -

Lake outlet - New River 3,905,320

3. Net annual N loss - 1,219,865 kg.

* Estimate based on 496 lakeshore dwellings, one park, and one camp; see Working Paper No. 175.
** See Working Paper No. 175.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

| Tributary | kg P/km$^2$/yr | kg N/km$^2$/yr |
|---|---|---|
| New River | 28 | 469 |
| Big Macks Creek | 6 | 119 |
| Big Reed Island Creek | 14 | 211 |
| Little Reed Island Creek | 7 | 225 |
| Pine Run | 6 | 355 |
| Peak Creek | 34 | 454 |
| Goose Creek | 15 | 547 |
| Unnamed Stream H-1 | 35 | 348 |

E. Yearly Loads:

In the following table, the existing phosphorus loadings are compared to those proposed by Vollenweider (Vollenweider and Dillon, 1974). Essentially, his "dangerous" loading is one at which the receiving water would become eutrophic or remain eutrophic; his "permissible" loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic loading would be considered one between "dangerous" and "permissible".

Note that Vollenweider's model may not be applicable to water bodies with short hydraulic retention times.

| | Total Phosphorus | | Total Nitrogen | |
|---|---|---|---|---|
| | Total | Accumulated | Total | Accumulated |
| grams/$m^2$/yr | 10.06 | 5.12 | 147.5 | loss* |
| Vollenweider phosphorus loadings ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Claytor Lake: | | | | |
| "Dangerous" (eutrophic loading) | | | 2.46 | |
| "Permissible" (oligotrophic loading) | | | 1.23 | |

* There was an apparent loss of nitrogen during the sampling year. This may have been due to nitrogen fixation in the lake, solubilization of previously sedimented nitrogen, recharge with nitrogen-rich ground water, or unknown and unsampled point sources discharging directly to the lake. Whatever the cause, a similar nitrogen loss has occurred at Shagawa Lake, Minnesota, which has been intensively studied by EPA's former National Eutrophication and Lake Restoration Branch (Malueg et al., 1975).

## V. LITERATURE REVIEWED

Anonymous, 1971. Inventory of municipal waste facilities. EPA Publ. OWP-1, vol. 3, Wash. DC.

Bellanca, Michael A., 1975. Personal communication (lake morphometry). VA Water Contr. Bd., Richmond.

Gregory, H. Jean, 1973. Personal communication (VA Water Control Board data summary for Claytor Lake). VA Water Contr. Bd., Richmond.

_____, 1974. Personal communication (lake survey questionnaire). VA Water Contr. Bd., Richmond.

Malueg, Kenneth W., D. Phillips Larsen, Donald W. Schults, and Howard T. Mercier; 1975. A six-year water, phosphorus, and nitrogen budget for Shagawa Lake, Minnesota. Jour. Environ. Qual., vol. 4, no. 2, pp. 236-242.

Vollenweider, R. A., and P. J. Dillon, 1974. The application of the phosphorus loading concept to eutrophication research. Natl. Res. Council of Canada Publ. No. 13690, Canada Centre for Inland Waters, Burlington, Ontario.

# VI. APPENDICES

## APPENDIX A

## LAKE RANKINGS

LAKE DATA TO BE USED IN RANKINGS

| LAKE CODE | LAKE NAME | MEDIAN TOTAL P | MEDIAN INORG N | 500-MEAN SEC | MEAN CHLOPA | 15-MIN DO | MEDIAN DISS ORTHO P |
|---|---|---|---|---|---|---|---|
| 5103 | CLAYTOR LAKE | 0.031 | 0.450 | 439.500 | 5.642 | 14.900 | 0.008 |
| 5105 | JOHN W. FLANNAGAN DAM | 0.011 | 0.320 | 415.700 | 5.955 | 14.800 | 0.004 |
| 5106 | JOHN H. KERR RESERVOIR | 0.044 | 0.290 | 458.937 | 8.633 | 15.000 | 0.009 |
| 5108 | OCCOQUAN RESERVOIR | 0.098 | 0.525 | 459.750 | 12.417 | 15.000 | 0.037 |
| 5110 | SMITH MOUNTAIN LAKE | 0.015 | 0.410 | 419.667 | 11.593 | 15.000 | 0.005 |
| 5111 | LAKE CHESDIN | 0.044 | 0.240 | 465.778 | 12.556 | 14.800 | 0.008 |
| 5112 | CHICKAHOMINY LAKE | 0.066 | 0.125 | 455.333 | 13.600 | 9.400 | 0.017 |
| 5113 | RIVANNA (SOUTH FORK) RES | 0.079 | 0.475 | 460.222 | 6.667 | 13.000 | 0.022 |

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

| LAKE CODE | LAKE NAME | MEDIAN TOTAL P | MEDIAN INORG N | 500- MEAN SEC | MEAN CHLORA | 15- MIN DO | MEDIAN DISS ORTHO P | INDEX NO |
|---|---|---|---|---|---|---|---|---|
| 5103 | CLAYTOR LAKE | 71 ( 5) | 29 ( 2) | 71 ( 5) | 100 ( 7) | 43 ( 3) | 64 ( 4) | 378 |
| 5105 | JOHN W. FLANNAGAN DAM | 100 ( 7) | 57 ( 4) | 100 ( 7) | 86 ( 6) | 64 ( 4) | 100 ( 7) | 507 |
| 5106 | JOHN H. KERR RESERVOIR | 43 ( 3) | 71 ( 5) | 43 ( 3) | 57 ( 4) | 14 ( 0) | 43 ( 3) | 271 |
| 5108 | OCCOQUAN RESERVOIR | 0 ( 0) | 0 ( 0) | 29 ( 2) | 29 ( 2) | 14 ( 0) | 0 ( 0) | 72 |
| 5110 | SMITH MOUNTAIN LAKE | 86 ( 6) | 43 ( 3) | 86 ( 6) | 43 ( 3) | 14 ( 0) | 86 ( 6) | 358 |
| 5111 | LAKE CHESDIN | 57 ( 4) | 86 ( 6) | 0 ( 0) | 14 ( 1) | 64 ( 4) | 64 ( 4) | 285 |
| 5112 | CHICKAHOMINY LAKE | 29 ( 2) | 100 ( 7) | 57 ( 4) | 0 ( 0) | 100 ( 7) | 29 ( 2) | 315 |
| 5113 | RIVANNA (SOUTH FORK) RES | 14 ( 1) | 14 ( 1) | 14 ( 1) | 71 ( 5) | 86 ( 6) | 14 ( 1) | 213 |

LAKES RANKED BY INDEX NOS.

| RANK | LAKE CODE | LAKE NAME | INDEX NO |
|---|---|---|---|
| 1 | 5105 | JOHN W. FLANNAGAN DAM | 507 |
| 2 | 5103 | CLAYTOR LAKE | 378 |
| 3 | 5110 | SMITH MOUNTAIN LAKE | 358 |
| 4 | 5112 | CHICKAHOMINY LAKE | 315 |
| 5 | 5111 | LAKE CHESDIN | 285 |
| 6 | 5106 | JOHN H. KERR RESERVOIR | 271 |
| 7 | 5113 | RIVANNA (SOUTH FORK) RES | 213 |
| 8 | 5108 | OCCOQUAN RESERVOIR | 72 |

# APPENDIX B

## CONVERSION FACTORS

## CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x $8.107 \times 10^{-4}$ = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

# APPENDIX C

## TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR VIRGINIA 02/05/76

LAKE CODE 5103 CLAYTOR LAKE

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 6138.3

NORMALIZED FLOWS(CMS)

| TRIBUTARY | SUB-DRAINAGE AREA(SQ KM) | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5103A1 | 6138.3 | 116.10 | 141.58 | 152.91 | 130.26 | 99.11 | 73.62 | 76.46 | 79.29 | 65.13 | 70.79 | 76.46 | 90.61 | 97.46 |
| 5103A2 | 4763.0 | 99.11 | 116.10 | 127.43 | 107.60 | 82.12 | 65.13 | 65.13 | 70.79 | 59.47 | 62.30 | 67.96 | 76.46 | 83.12 |
| 5103B1 | 48.4 | 0.57 | 0.76 | 0.96 | 0.68 | 0.57 | 0.25 | 0.34 | 0.14 | 0.08 | 0.06 | 0.20 | 0.45 | 0.42 |
| 5103C1 | 673.4 | 10.82 | 13.65 | 15.97 | 13.42 | 10.25 | 6.26 | 5.41 | 3.06 | 2.94 | 2.86 | 5.69 | 8.58 | 8.21 |
| 5103D1 | 216.3 | 2.83 | 2.94 | 3.03 | 2.92 | 2.83 | 1.53 | 1.30 | 1.10 | 0.71 | 0.59 | 1.39 | 2.41 | 1.96 |
| 5103E1 | 38.3 | 0.42 | 0.57 | 0.76 | 0.51 | 0.45 | 0.20 | 0.14 | 0.11 | 0.06 | 0.06 | 0.14 | 0.34 | 0.31 |
| 5103F1 | 220.4 | 2.86 | 2.97 | 3.03 | 2.92 | 2.86 | 1.59 | 1.30 | 1.13 | 0.71 | 0.59 | 1.39 | 2.41 | 1.98 |
| 5103G1 | 9.3 | 0.08 | 0.14 | 0.17 | 0.11 | 0.08 | 0.03 | 0.03 | 0.02 | 0.01 | 0.01 | 0.03 | 0.06 | 0.06 |
| 5103H1 | 9.6 | 0.08 | 0.14 | 0.17 | 0.11 | 0.11 | 0.03 | 0.03 | 0.02 | 0.01 | 0.01 | 0.03 | 0.06 | 0.07 |
| 5103ZZ | 159.5 | 2.12 | 2.83 | 3.40 | 2.55 | 2.04 | 1.05 | 0.85 | 0.71 | 0.45 | 0.37 | 0.85 | 1.64 | 1.57 |

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 6138.3
SUM OF SUB-DRAINAGE AREAS = 6138.2

TOTAL FLOW IN = 1175.07
TOTAL FLOW OUT = 1172.32

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

| TRIBUTARY | MONTH | YEAR | MEAN FLOW | DAY | FLOW | DAY | FLOW | DAY | FLOW |
|---|---|---|---|---|---|---|---|---|---|
| 5103A1 | 7 | 73 | 90.05 | 16 | 146.40 | | | | |
| | 8 | 73 | 84.95 | 12 | 23.05 | | | | |
| | 9 | 73 | 53.24 | 8 | 25.26 | | | | |
| | 10 | 73 | 70.79 | 12 | 88.63 | | | | |
| | 11 | 73 | 68.24 | 11 | 35.11 | | | | |
| | 12 | 73 | 169.62 | 9 | 102.51 | | | | |
| | 1 | 74 | 193.40 | 12 | 183.49 | | | | |
| | 2 | 74 | 168.77 | 9 | 136.49 | | | | |
| | 3 | 74 | 148.95 | 9 | 96.28 | | | | |
| | 4 | 74 | 195.10 | 6 | 438.91 | | | | |
| | 5 | 74 | 134.79 | 8 | 120.35 | | | | |
| | 6 | 74 | 126.01 | 8 | 202.47 | | | | |
| 5103A2 | 7 | 73 | 67.11 | 15 | 52.10 | | | | |
| | 8 | 73 | 62.01 | 11 | 69.66 | | | | |
| | 9 | 73 | 42.76 | 8 | 28.12 | | | | |
| | 10 | 73 | 52.10 | 12 | 53.24 | | | | |
| | 11 | 73 | 53.24 | 10 | 42.76 | | | | |
| | 12 | 73 | 133.94 | 8 | 98.54 | | | | |
| | 1 | 74 | 154.61 | 12 | 186.89 | | | | |
| | 2 | 74 | 141.58 | 9 | 112.98 | | | | |
| | 3 | 74 | 118.65 | 9 | 78.15 | | | | |
| | 4 | 74 | 159.42 | 6 | 387.94 | | | | |
| | 5 | 74 | 97.41 | 7 | 95.71 | 21 | 28.03 | | |
| | 6 | 74 | 91.18 | 8 | 172.73 | 18 | 81.84 | | |

# APPENDIX C

## TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR VIRGINIA 02/05/76

LAKE CODE 5103 CLAYTOR LAKE

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 6138.3

| TRIBUTARY | SUB-DRAINAGE AREA(SQ KM) | NORMALIZED FLOWS(CMS) JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5103A1 | 6138.3 | 116.10 | 141.58 | 152.91 | 130.26 | 99.11 | 73.62 | 76.46 | 79.29 | 65.13 | 70.79 | 76.46 | 90.61 | 97.46 |
| 5103A2 | 4763.0 | 99.11 | 116.10 | 127.43 | 107.60 | 82.12 | 65.13 | 65.13 | 70.79 | 59.47 | 62.30 | 67.96 | 76.46 | 83.12 |
| 5103B1 | 48.4 | 0.57 | 0.76 | 0.96 | 0.68 | 0.57 | 0.25 | 0.34 | 0.14 | 0.08 | 0.06 | 0.20 | 0.45 | 0.42 |
| 5103C1 | 673.4 | 10.82 | 13.65 | 15.97 | 13.42 | 10.25 | 6.26 | 5.41 | 3.06 | 2.94 | 2.86 | 5.69 | 8.58 | 8.21 |
| 5103D1 | 216.3 | 2.83 | 2.94 | 3.03 | 2.92 | 2.83 | 1.53 | 1.30 | 1.10 | 0.71 | 0.59 | 1.39 | 2.41 | 1.96 |
| 5103E1 | 38.3 | 0.42 | 0.57 | 0.76 | 0.51 | 0.45 | 0.20 | 0.14 | 0.11 | 0.06 | 0.06 | 0.14 | 0.34 | 0.31 |
| 5103F1 | 220.4 | 2.86 | 2.97 | 3.03 | 2.92 | 2.86 | 1.59 | 1.30 | 1.13 | 0.71 | 0.59 | 1.39 | 2.41 | 1.98 |
| 5103G1 | 9.3 | 0.08 | 0.14 | 0.17 | 0.11 | 0.08 | 0.03 | 0.03 | 0.02 | 0.01 | 0.01 | 0.03 | 0.06 | 0.06 |
| 5103H1 | 9.6 | 0.08 | 0.14 | 0.17 | 0.11 | 0.11 | 0.03 | 0.03 | 0.02 | 0.01 | 0.01 | 0.03 | 0.06 | 0.07 |
| 5103ZZ | 159.5 | 2.12 | 2.83 | 3.40 | 2.55 | 2.04 | 1.05 | 0.85 | 0.71 | 0.45 | 0.37 | 0.85 | 1.64 | 1.57 |

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 6138.3 TOTAL FLOW IN = 1175.07
SUM OF SUB-DRAINAGE AREAS = 6138.2 TOTAL FLOW OUT = 1172.32

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

| TRIBUTARY | MONTH | YEAR | MEAN FLOW | DAY | FLOW | DAY | FLOW | DAY | FLOW |
|---|---|---|---|---|---|---|---|---|---|
| 5103A1 | 7 | 73 | 90.05 | 16 | 146.40 | | | | |
| | 8 | 73 | 84.95 | 12 | 23.05 | | | | |
| | 9 | 73 | 53.24 | 8 | 25.26 | | | | |
| | 10 | 73 | 70.79 | 12 | 88.63 | | | | |
| | 11 | 73 | 68.24 | 11 | 35.11 | | | | |
| | 12 | 73 | 169.62 | 9 | 102.51 | | | | |
| | 1 | 74 | 193.40 | 12 | 183.49 | | | | |
| | 2 | 74 | 168.77 | 9 | 136.49 | | | | |
| | 3 | 74 | 148.95 | 9 | 96.28 | | | | |
| | 4 | 74 | 195.10 | 6 | 438.91 | | | | |
| | 5 | 74 | 134.79 | 8 | 120.35 | | | | |
| | 6 | 74 | 126.01 | 8 | 202.47 | | | | |
| 5103A2 | 7 | 73 | 67.11 | 15 | 52.10 | | | | |
| | 8 | 73 | 62.01 | 11 | 69.66 | | | | |
| | 9 | 73 | 42.76 | 8 | 28.12 | | | | |
| | 10 | 73 | 52.10 | 12 | 53.24 | | | | |
| | 11 | 73 | 53.24 | 10 | 42.76 | | | | |
| | 12 | 73 | 133.94 | 8 | 98.54 | | | | |
| | 1 | 74 | 154.61 | 12 | 186.89 | | | | |
| | 2 | 74 | 141.58 | 9 | 112.98 | | | | |
| | 3 | 74 | 118.65 | 9 | 78.15 | | | | |
| | 4 | 74 | 159.42 | 6 | 387.94 | | | | |
| | 5 | 74 | 97.41 | 7 | 95.71 | 21 | 28.03 | | |
| | 6 | 74 | 91.18 | 8 | 172.73 | 18 | 81.84 | | |

TRIBUTARY FLOW INFORMATION FOR VIRGINIA 02/05/76

LAKE CODE 5103 CLAYTOR LAKE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

| TRIBUTARY | MONTH | YEAR | MEAN FLOW | DAY | FLOW | DAY | FLOW | DAY | FLOW |
|---|---|---|---|---|---|---|---|---|---|
| 5103B1 | 7 | 73 | 0.34 | 15 | 0.10 | | | | |
| | 8 | 73 | 0.34 | 11 | 0.11 | | | | |
| | 9 | 73 | 0.21 | 8 | 0.06 | | | | |
| | 10 | 73 | 0.23 | 12 | 0.07 | | | | |
| | 11 | 73 | 0.34 | 10 | 0.08 | | | | |
| | 12 | 73 | 0.93 | 8 | 0.15 | | | | |
| | 1 | 74 | 1.59 | 12 | 0.42 | | | | |
| | 2 | 74 | 1.22 | 9 | 0.20 | | | | |
| | 3 | 74 | 1.25 | 9 | 0.16 | | | | |
| | 4 | 74 | 1.02 | 6 | 0.37 | | | | |
| | 5 | 74 | 0.74 | 7 | 0.17 | 21 | 0.14 | | |
| | 6 | 74 | 0.48 | 8 | 0.12 | 18 | 0.12 | | |
| 5103C1 | 7 | 73 | 12.97 | 15 | 17.73 | | | | |
| | 8 | 73 | 10.62 | 11 | 11.78 | | | | |
| | 9 | 73 | 8.27 | 8 | 7.11 | | | | |
| | 10 | 73 | 10.14 | 12 | 8.47 | | | | |
| | 11 | 73 | 8.66 | 10 | 7.31 | | | | |
| | 12 | 73 | 28.60 | 8 | 12.37 | | | | |
| | 1 | 74 | 23.39 | 12 | 23.67 | | | | |
| | 2 | 74 | 21.80 | 9 | 18.21 | | | | |
| | 3 | 74 | 17.13 | 9 | 14.33 | | | | |
| | 4 | 74 | 26.11 | 6 | 44.46 | | | | |
| | 5 | 74 | 13.59 | 7 | 14.81 | 21 | 14.41 | | |
| | 6 | 74 | 10.76 | 8 | 13.45 | 18 | 11.78 | | |
| 5103D1 | 7 | 73 | 3.14 | 15 | 3.91 | | | | |
| | 8 | 73 | 2.58 | 11 | 2.69 | | | | |
| | 9 | 73 | 2.01 | 8 | 1.70 | | | | |
| | 10 | 73 | 2.46 | 12 | 1.93 | | | | |
| | 11 | 73 | 2.10 | 10 | 1.73 | | | | |
| | 12 | 73 | 6.97 | 8 | 2.66 | | | | |
| | 1 | 74 | 5.66 | 12 | 5.52 | | | | |
| | 2 | 74 | 5.30 | 9 | 3.96 | | | | |
| | 3 | 74 | 4.16 | 9 | 3.06 | | | | |
| | 4 | 74 | 6.34 | 6 | 13.59 | | | | |
| | 5 | 74 | 3.40 | 7 | 3.17 | 21 | 3.11 | | |
| | 6 | 74 | 2.83 | 8 | 2.89 | 18 | 2.55 | | |
| 5103E1 | 7 | 73 | 0.27 | 15 | 0.27 | | | | |
| | 8 | 73 | 0.26 | 11 | 0.28 | | | | |
| | 9 | 73 | 0.16 | 8 | 0.19 | | | | |
| | 10 | 73 | 0.18 | 12 | 0.21 | | | | |
| | 11 | 73 | 0.27 | 10 | 0.22 | | | | |
| | 12 | 73 | 0.74 | 8 | 0.40 | | | | |
| | 1 | 74 | 1.27 | 12 | 0.96 | | | | |
| | 2 | 74 | 0.96 | 9 | 0.51 | | | | |
| | 3 | 74 | 0.99 | 9 | 0.40 | | | | |
| | 4 | 74 | 0.82 | 6 | 0.91 | | | | |
| | 5 | 74 | 0.59 | 7 | 0.42 | 21 | 0.37 | | |
| | 6 | 74 | 0.37 | 8 | 0.31 | 18 | 0.28 | | |

TRIBUTARY FLOW INFORMATION FOR VIRGINIA 02/05/76

LAKE CODE 5103 CLAYTOR LAKE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

| TRIBUTARY | MONTH | YEAR | MEAN FLOW | DAY | FLOW | DAY | FLOW | DAY | FLOW |
|---|---|---|---|---|---|---|---|---|---|
| 5103F1 | 7 | 73 | 1.53 | 15 | 0.85 | | | | |
| | 8 | 73 | 1.53 | 12 | 0.91 | | | | |
| | 9 | 73 | 0.93 | 8 | 0.51 | | | | |
| | 10 | 73 | 1.05 | 12 | 0.62 | | | | |
| | 11 | 73 | 1.53 | 11 | 0.62 | | | | |
| | 12 | 73 | 4.28 | 9 | 1.33 | | | | |
| | 1 | 74 | 7.25 | 12 | 2.89 | | | | |
| | 2 | 74 | 5.58 | 9 | 1.64 | | | | |
| | 3 | 74 | 5.69 | 9 | 1.36 | | | | |
| | 4 | 74 | 4.64 | 6 | 2.78 | | | | |
| | 5 | 74 | 3.34 | 8 | 1.30 | | | | |
| | 6 | 74 | 2.18 | 8 | 1.02 | | | | |
| 5103G1 | 7 | 73 | 0.07 | 15 | 0.05 | | | | |
| | 8 | 73 | 0.07 | 12 | 0.06 | | | | |
| | 9 | 73 | 0.04 | 8 | 0.02 | | | | |
| | 10 | 73 | 0.05 | 12 | 0.03 | | | | |
| | 11 | 73 | 0.07 | 11 | 0.03 | | | | |
| | 12 | 73 | 0.18 | 9 | 0.15 | | | | |
| | 1 | 74 | 0.31 | 12 | 2.21 | | | | |
| | 2 | 74 | 0.24 | 9 | 0.28 | | | | |
| | 3 | 74 | 0.24 | 9 | 0.17 | | | | |
| | 4 | 74 | 0.20 | 6 | 1.81 | | | | |
| | 5 | 74 | 0.14 | 8 | 0.14 | | | | |
| | 6 | 74 | 0.09 | 8 | 0.08 | | | | |
| 5103H1 | 7 | 73 | 0.14 | 15 | 0.06 | | | | |
| | 8 | 73 | 0.11 | 12 | 0.03 | | | | |
| | 9 | 73 | 0.09 | 8 | 0.02 | | | | |
| | 10 | 73 | 0.11 | 12 | 0.02 | | | | |
| | 11 | 73 | 0.09 | 11 | 0.02 | | | | |
| | 12 | 73 | 0.31 | 9 | 0.08 | | | | |
| | 1 | 74 | 0.25 | 12 | 0.11 | | | | |
| | 2 | 74 | 0.24 | 9 | 0.07 | | | | |
| | 3 | 74 | 0.18 | 9 | 0.05 | | | | |
| | 4 | 74 | 0.28 | 6 | 0.45 | | | | |
| | 5 | 74 | 0.15 | 8 | 0.04 | | | | |
| | 6 | 74 | 0.11 | 8 | 0.04 | | | | |

# APPENDIX D

## PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 76/02/05

510301
37 04 25.0 080 35 25.0
CLAYTOR LAKE
51155 VIRGINIA

11EPALES
3

2111202
0100 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00010 WATER TEMP CENT | 00300 DO MG/L | 00077 TRANSP SECCHI INCHES | 00094 CNDUCTVY FIELD MICROMHO | 00400 PH SU | 00410 T ALK CACO3 MG/L | 00610 NH3-N TOTAL MG/L | 00625 TOT KJEL N MG/L | 00630 NO2&NO3 N-TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73/04/04 | 11 10 | 0000 | 11.4 | | 31 | 88 | 7.90 | 26 | 0.090 | 0.300 | 0.680 | 0.010 |
| | 11 10 | 0004 | 11.4 | 9.8 | | 88 | 7.80 | 27 | 0.080 | 0.300 | 0.680 | 0.008 |
| | 11 10 | 0015 | 11.3 | 9.8 | | 88 | 7.80 | 28 | 0.080 | 0.300 | 0.690 | 0.011 |
| | 11 10 | 0045 | 11.2 | 9.8 | | 90 | 7.80 | 28 | 0.080 | 0.400 | 0.690 | 0.011 |
| | 11 10 | 0070 | 9.4 | 9.6 | | 92 | 7.70 | 25 | 0.120 | 0.500 | 0.740 | 0.019 |
| | 11 10 | 0095 | 8.2 | 9.6 | | 92 | 7.70 | 29 | 0.100 | 0.400 | 0.760 | 0.012 |
| 73/07/16 | 09 30 | 0000 | 27.5 | | 108 | 76 | 9.40 | 33 | 0.080 | 0.500 | 0.080 | 0.004 |
| | 09 30 | 0010 | 27.5 | 8.6 | | 84 | 9.30 | 32 | 0.080 | 0.200 | 0.100 | 0.005 |
| | 09 30 | 0015 | 27.2 | | | 83 | | | | | | |
| | 09 30 | 0022 | 26.7 | 6.8 | | 79 | 6.90 | 30 | 0.080 | 0.200K | 0.190 | 0.004 |
| | 09 30 | 0030 | 24.9 | | | 72 | | | | | | |
| | 09 30 | 0040 | 24.0 | | | 72 | | | | | | |
| | 09 30 | 0050 | 23.6 | 3.0 | | 72 | 7.00 | 29 | 0.060 | 0.200K | 0.500 | 0.004 |
| | 09 30 | 0060 | 23.3 | | | 80 | | | | | | |
| | 09 30 | 0070 | 21.7 | | | 86 | | | | | | |
| | 09 30 | 0080 | 18.2 | | | 53 | | | | | | |
| | 09 30 | 0090 | 15.5 | 0.2 | | 63 | 6.70 | 25 | 0.180 | 0.400 | 0.690 | 0.010 |
| | 09 30 | 0100 | 12.8 | | | 100 | | | | | | |
| | 09 30 | 0110 | 12.1 | | | 115 | | | | | | |
| | 09 30 | 0115 | 11.5 | 0.2 | | 241 | 6.90 | 39 | 0.580 | 0.900 | 0.320 | 0.005 |
| 73/09/27 | 10 00 | 0000 | 23.6 | | 102 | 91 | 7.50 | 33 | 0.060 | 0.500 | 0.210 | 0.009 |
| | 10 00 | 0005 | 23.6 | 5.4 | | 94 | 7.20 | 31 | 0.040 | 0.200K | 0.190 | 0.007 |
| | 10 00 | 0020 | 23.5 | 4.4 | | 101 | 7.00 | 34 | 0.090 | 0.200K | 0.200 | 0.007 |
| | 10 00 | 0040 | 23.3 | 3.4 | | 96 | 6.80 | 32 | 0.080 | 0.200K | 0.250 | 0.009 |
| | 10 00 | 0055 | 22.8 | 0.1 | | 88 | 6.70 | 33 | 0.040 | 0.400 | 0.080 | 0.049 |
| | 10 00 | 0070 | 21.8 | 2.6 | | 80 | 6.70 | 28 | 0.140 | 0.200K | 0.350 | 0.010 |
| | 10 00 | 0080 | 17.7 | 0.1 | | 90 | 6.60 | 38 | 0.440 | 0.600 | 0.270 | 0.008 |
| | 10 00 | 0095 | 13.2 | 0.2 | | 17 | 6.60 | 53 | 0.930 | 1.300 | 0.030 | 0.007 |
| | 10 00 | 0105 | 12.3 | 0.1 | | 113 | 6.70 | 61 | 1.270 | 1.800 | 0.040 | 0.006 |

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/02/05

510301
37 04 25.0 080 35 25.0
CLAYTOR LAKE
51155 VIRGINIA

11EPALES 2111202
3 0100 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00665 PHOS-TOT MG/L P | 32217 CHLRPHYL A UG/L |
|---|---|---|---|---|
| 73/04/04 | 11 10 | 0000 | 0.044 | 2.3 |
| | 11 10 | 0004 | 0.040 | |
| | 11 10 | 0015 | 0.041 | |
| | 11 10 | 0045 | 0.039 | |
| | 11 10 | 0070 | 0.068 | |
| | 11 10 | 0095 | 0.042 | |
| 73/07/16 | 09 30 | 0000 | 0.018 | 3.3 |
| | 09 30 | 0010 | 0.020 | |
| | 09 30 | 0022 | 0.018 | |
| | 09 30 | 0050 | 0.012 | |
| | 09 30 | 0090 | 0.046 | |
| | 09 30 | 0115 | 0.051 | |
| 73/09/27 | 10 00 | 0000 | 0.018 | 5.2 |
| | 10 00 | 0005 | 0.018 | |
| | 10 00 | 0020 | 0.014 | |
| | 10 00 | 0040 | 0.015 | |
| | 10 00 | 0055 | 0.089 | |
| | 10 00 | 0070 | 0.022 | |
| | 10 00 | 0080 | 0.027 | |
| | 10 00 | 0095 | 0.021 | |
| | 10 00 | 0105 | 0.031 | |

STORET RETRIEVAL DATE 76/02/05

510302
37 03 06.0 080 40 10.0
CLAYTOR LAKE
51155 VIRGINIA

11EPALES
3

2111202
0085 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00010 WATER TEMP CENT | 00300 DO MG/L | 00077 TRANSP SECCHI INCHES | 00094 CNDUCTVY FIELD MICROMHO | 00400 PH SU | 00410 T ALK CACO3 MG/L | 00610 NH3-N TOTAL MG/L | 00625 TOT KJEL N MG/L | 00630 NO2&NO3 N-TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73/04/04 | 12 10 | 0000 | 12.8 | | 24 | 90 | 7.70 | 30 | 0.070 | 0.500 | 0.630 | 0.009 |
| | 12 10 | 0004 | 12.7 | 9.5 | | 90 | 7.80 | 31 | 0.060 | 0.200 | 0.620 | 0.009 |
| | 12 10 | 0015 | 12.7 | 9.5 | | 92 | 7.80 | 31 | 0.070 | 0.200K | 0.650 | 0.011 |
| | 12 10 | 0035 | 12.4 | 9.5 | | 92 | 7.70 | 30 | 0.100 | 0.200 | 0.750 | 0.014 |
| | 12 10 | 0055 | 9.5 | 9.5 | | 100 | 7.70 | 30 | 0.090 | 0.200 | 0.770 | 0.010 |
| | 12 10 | 0080 | 8.4 | 9.4 | | 100 | 7.70 | 34 | 0.110 | 0.300 | 0.750 | 0.009 |
| 73/07/16 | 10 45 | 0000 | 27.2 | 7.6 | 108 | 75 | 8.50 | 22 | 0.090 | 0.400 | 0.180 | 0.004 |
| | 10 45 | 0010 | 27.1 | | | 80 | | | | | | |
| | 10 45 | 0021 | 26.2 | 5.2 | | 87 | 7.50 | 25 | 0.100 | 0.200 | 0.290 | 0.003 |
| | 10 45 | 0030 | 25.4 | | | 82 | | | | | | |
| | 10 45 | 0040 | 24.5 | | | 85 | | | | | | |
| | 10 45 | 0050 | 23.9 | 3.4 | | 85 | 7.00 | 24 | 0.050 | 0.200K | 0.480 | 0.004 |
| | 10 45 | 0060 | 23.3 | | | 92 | | | | | | |
| | 10 45 | 0070 | 20.5 | | | 102 | | | | | | |
| | 10 45 | 0075 | 18.8 | 0.3 | | 84 | 6.90 | 30 | 0.250 | 0.500 | 0.610 | 0.006 |
| 73/09/27 | 10 30 | 0000 | 23.5 | | 72 | 120 | | 36 | 0.050 | 0.600 | 0.160 | 0.006 |
| | 10 30 | 0005 | 23.4 | 7.0 | | 100 | 7.00 | 35 | 0.040 | 0.400 | 0.160 | 0.006 |
| | 10 30 | 0015 | 23.4 | 7.0 | | 100 | 7.00 | 33 | 0.040 | 0.400 | 0.160 | 0.006 |
| | 10 30 | 0030 | 23.3 | 5.8 | | 100 | 6.90 | 32 | 0.050 | 0.300 | 0.150 | 0.006 |
| | 10 30 | 0045 | 23.0 | 5.8 | | 100 | 7.00 | 36 | 0.070 | 0.200 | 0.160 | 0.005 |
| | 10 30 | 0060 | 22.0 | 5.0 | | 100 | 6.90 | 36 | 0.180 | 0.400 | 0.290 | 0.006 |
| | 10 30 | 0080 | 17.8 | 0.1 | | 120 | 6.80 | 74 | 1.350 | 1.700 | 0.030 | 0.005 |

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/02/05

510302
37 03 06.0 080 40 10.0
CLAYTOR LAKE
51155 VIRGINIA

11EPALES 2111202
3 0085 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00665 PHOS-TOT MG/L P | 32217 CHLRPHYL A UG/L |
|---|---|---|---|---|
| 73/04/04 | 12 10 | 0000 | 0.040 | 1.0 |
| | 12 10 | 0004 | 0.030 | |
| | 12 10 | 0015 | 0.031 | |
| | 12 10 | 0035 | 0.040 | |
| | 12 10 | 0055 | 0.031 | |
| | 12 10 | 0080 | 0.032 | |
| 73/07/16 | 10 45 | 0000 | 0.017 | 3.9 |
| | 10 45 | 0021 | 0.015 | |
| | 10 45 | 0050 | 0.015 | |
| | 10 45 | 0075 | 0.034 | |
| 73/09/27 | 10 30 | 0000 | 0.021 | 12.6 |
| | 10 30 | 0005 | 0.022 | |
| | 10 30 | 0015 | 0.021 | |
| | 10 30 | 0030 | 0.018 | |
| | 10 30 | 0045 | 0.016 | |
| | 10 30 | 0060 | 0.036 | |
| | 10 30 | 0080 | 0.048 | |

STORET RETRIEVAL DATE 76/02/05

510303
37 00 13.0 080 40 52.0
CLAYTOR LAKE
51155 VIRGINIA

11EPALES
3

2111202
0045 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00010 WATER TEMP CENT | 00300 DO MG/L | 00077 TRANSP SECCHI INCHES | 00094 CNDUCTVY FIELD MICROMHO | 00400 PH SU | 00410 T ALK CACO3 MG/L | 00610 NH3-N TOTAL MG/L | 00625 TOT KJEL N MG/L | 00630 NO2&NO3 N-TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73/04/04 | 12 50 | 0000 | 12.6 | | 36 | 90 | 7.70 | 28 | 0.060 | 0.300 | 0.610 | 0.009 |
| | 12 50 | 0004 | 12.6 | 9.6 | | 90 | 7.70 | 29 | 0.060 | 0.300 | 0.600 | 0.008 |
| | 12 50 | 0015 | 12.6 | 9.5 | | 95 | 7.70 | 31 | 0.100 | 0.300 | 0.720 | 0.010 |
| | 12 50 | 0040 | 9.9 | 9.4 | | 95 | 7.70 | 31 | 0.090 | 0.400 | 0.710 | 0.008 |
| 73/07/16 | 11 30 | 0000 | 26.9 | 7.0 | 84 | 77 | 8.00 | 24 | 0.080 | 0.400 | 0.160 | 0.004 |
| | 11 30 | 0010 | 26.7 | | | 86 | | | | | | |
| | 11 30 | 0015 | 26.7 | 7.2 | | 85 | 7.70 | 28 | 0.110 | 0.300 | 0.180 | 0.003 |
| | 11 30 | 0020 | 26.5 | | | 86 | | | | | | |
| | 11 30 | 0025 | 26.1 | | | 85 | | | | | | |
| | 11 30 | 0030 | 25.8 | 5.6 | | 85 | 7.30 | 31 | 0.120 | 0.400 | 0.200 | 0.005 |
| | 11 30 | 0035 | 25.5 | | | 85 | | | | | | |
| | 11 30 | 0040 | 25.0 | | | 86 | | | | | | |
| | 11 30 | 0043 | 24.8 | 1.4 | | 88 | 7.00 | 49 | 0.220 | 0.600 | 0.230 | 0.006 |
| 73/09/27 | 11 10 | 0000 | 23.5 | | 68 | 100 | 7.20 | 40 | 0.060 | 0.500 | 0.110 | 0.006 |
| | 11 10 | 0005 | 23.5 | 7.0 | | 100 | 7.20 | 41 | 0.040 | 0.500 | 0.110 | 0.014 |
| | 11 10 | 0015 | 23.3 | 7.0 | | 100 | 7.00 | 41 | 0.050 | 0.400 | 0.110 | 0.008 |
| | 11 10 | 0025 | 23.2 | 7.0 | | 100 | 7.10 | 41 | 0.050 | 0.500 | 0.100 | 0.007 |
| | 11 10 | 0040 | 23.0 | 7.0 | | 100 | 7.20 | 40 | 0.050 | 0.400 | 0.120 | 0.006 |

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00665 PHOS-TOT MG/L P | 32217 CHLRPHYL A UG/L |
|---|---|---|---|---|
| 73/04/04 | 12 50 | 0000 | 0.045 | 1.1 |
| | 12 50 | 0004 | 0.036 | |
| | 12 50 | 0015 | 0.034 | |
| | 12 50 | 0040 | 0.036 | |
| 73/07/16 | 11 30 | 0000 | 0.022 | 8.0 |
| | 11 30 | 0015 | 0.021 | |
| | 11 30 | 0030 | 0.032 | |
| | 11 30 | 0043 | 0.064 | |
| 73/09/27 | 11 10 | 0000 | 0.023 | 15.3 |
| | 11 10 | 0005 | 0.019 | |
| | 11 10 | 0015 | 0.016 | |
| | 11 10 | 0025 | 0.016 | |
| | 11 10 | 0040 | 0.028 | |

STORET RETRIEVAL DATE 76/02/05

510304
36 58 55.0 080 44 13.0
CLAYTOR LAKE
51155 VIRGINIA

11EPALES
3

2111202
0010 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00010 WATER TEMP CENT | 00300 DO MG/L | 00077 TRANSP SECCHI INCHES | 00094 CNDUCTVY FIELD MICROMHO | 00400 PH SU | 00410 T ALK CACO3 MG/L | 00610 NH3-N TOTAL MG/L | 00625 TOT KJEL N MG/L | 00630 NO2&NO3 N-TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73/04/04 | 17 15 | 0000 | 13.6 | | 24 | 100 | 7.80 | 36 | 0.060 | 0.200 | 0.640 | 0.014 |
| | 17 15 | 0006 | 13.6 | 9.4 | | 135 | 7.80 | 35 | 0.050 | 0.300 | 0.630 | 0.011 |
| 73/07/16 | 12 10 | 0000 | 25.3 | | 36 | 75 | 8.00 | 45 | 0.070 | 0.500 | 0.300 | 0.005 |
| | 12 10 | 0005 | 25.1 | 7.2 | | 80 | 7.80 | 47 | 0.070 | 0.300 | 0.310 | 0.004 |
| | 12 10 | 0010 | 25.1 | 7.2 | | 83 | 7.80 | 49 | 0.080 | 0.400 | 0.310 | 0.008 |
| 73/09/27 | 11 25 | 0000 | 21.6 | | 33 | 100 | 7.50 | 36 | 0.060 | 0.400 | 0.330 | 0.008 |
| | 11 25 | 0005 | 21.5 | 8.0 | | 100 | 7.50 | 36 | 0.070 | 0.300 | 0.330 | 0.009 |
| | 11 25 | 0010 | 21.5 | 7.8 | | 100 | 7.30 | 37 | 0.070 | 0.400 | 0.330 | 0.009 |

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00665 PHOS-TOT MG/L P | 32217 CHLRPHYL A UG/L |
|---|---|---|---|---|
| 73/04/04 | 17 15 | 0000 | 0.046 | 3.0 |
| | 17 15 | 0006 | 0.056 | |
| 73/07/16 | 12 10 | 0000 | 0.036 | 8.7 |
| | 12 10 | 0005 | 0.034 | |
| | 12 10 | 0010 | 0.033 | |
| 73/09/27 | 11 25 | 0000 | 0.032 | 3.3 |
| | 11 25 | 0005 | 0.030 | |
| | 11 25 | 0010 | 0.049 | |

# APPENDIX E

## TRIBUTARY and WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/03/26

51030A1
37 04 30.0 080 35 02.0
NEW RIVER
51019 7.5 RADFORTH S
U/CLAYTOR LAKE
CLAYTOR DAM
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/16 | 09 05 | | 0.530 | 2.300 | 0.050 | 0.019 | 0.035 |
| 73/08/12 | 15 30 | | 0.400 | 0.600 | 0.034 | 0.011 | 0.030 |
| 73/09/04 | 09 20 | | 0.336 | 0.190 | 0.036 | 0.022 | 0.045 |
| 73/10/12 | 09 30 | | 0.260 | 1.100 | 0.077 | 0.016 | 0.045 |
| 73/11/11 | 15 00 | | 0.220 | 1.750 | 0.189 | 0.011 | 0.025 |
| 74/01/12 | 09 35 | | 0.032 | 1.100 | 0.060 | 0.005K | 0.010 |
| 74/03/09 | 11 30 | | 0.667 | 0.200 | 0.020 | 0.010 | 0.055 |
| 74/04/06 | 10 15 | | 0.610 | 0.300 | 0.060 | 0.015 | 0.015 |
| 74/05/08 | 10 15 | | 0.520 | 0.400 | 0.050 | 0.005K | 0.020 |
| 74/06/04 | 10 30 | | 0.450 | 0.700 | 0.045 | 0.005 | 0.010 |

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/03/26

5103A2
36 55 09.0 080 46 17.0
NEW RIVER
51 7.5 FOSTER FALLS
T/CLAYTOR LAKE
100 YDS ABOV BARREN SPR STA ON RT 100
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 10 30 | | 0.340 | 0.500 | 0.018 | 0.008 | 0.030 |
| 73/08/11 | 09 55 | | 0.570 | 0.300 | 0.027 | 0.018 | 0.075 |
| 73/09/08 | 10 20 | | 0.110 | 0.190 | 0.075 | 0.009 | 0.035 |
| 73/10/12 | 10 35 | | 0.480 | 0.300 | 0.032 | 0.020 | 0.032 |
| 73/11/10 | 10 15 | | 0.380 | 0.175 | 0.044 | 0.012 | 0.035 |
| 73/12/08 | 10 45 | | 0.600 | 0.400 | 0.030 | 0.014 | 0.135 |
| 74/01/12 | 10 25 | | 0.720 | 0.400 | 0.016 | 0.016 | 0.085 |
| 74/03/04 | 10 20 | | 0.640 | 0.200 | 0.016 | 0.007 | 0.050 |
| 74/04/06 | 10 18 | | 0.740 | 1.300 | 0.045 | 0.015 | 0.040 |
| 74/05/07 | 10 40 | | 0.400 | 0.200 | 0.025 | 0.005 | 0.030 |
| 74/05/21 | 11 00 | | 0.490 | 0.200 | 0.055 | 0.020 | 0.050 |
| 74/06/08 | 10 00 | | 0.440 | 0.300 | 0.035 | 0.010 | 0.085 |
| 74/06/18 | 09 30 | | 0.480 | 0.300 | 0.010 | 0.015 | 0.055 |

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STORET RETRIEVAL DATE 75/03/26

510381
36 59 20.0 080 41 44.0
BIG MACKS CREEK
51 7.5 HIWASSEE
T/CLAYTOR LAKE
BRUG .5 MI NW OF MACK CREEK VILLAGE
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 09 25 | | 0.061 | 0.440 | 0.621 | 0.006 | 0.010 |
| 73/08/11 | 09 00 | | 0.120 | 0.340 | 0.066 | 0.013 | 0.080 |
| 73/09/08 | 09 30 | | 0.044 | 0.580 | 0.023 | 0.010 | 0.035 |
| 73/10/12 | 09 45 | | 0.035 | 0.850 | 0.020 | 0.012 | 0.012 |
| 73/11/10 | 09 30 | | 0.024 | 0.100K | 0.017 | 0.005K | 0.020 |
| 73/12/08 | 09 35 | | 0.052 | 0.100K | 0.012 | 0.005K | 0.045 |
| 74/01/12 | 08 40 | | 0.730 | 0.800 | 0.124 | 0.012 | 0.035 |
| 74/03/09 | 09 15 | | 0.024 | 0.100K | 0.010 | 0.005K | 0.020 |
| 74/04/06 | 09 31 | | 0.068 | 0.500 | 0.040 | 0.005K | 0.005 |
| 74/05/07 | 10 00 | | 0.016 | 0.100K | 0.010 | 0.005K | 0.005K |
| 74/05/21 | 10 00 | | 0.028 | 0.100K | 0.015 | 0.005 | 0.005K |
| 74/06/08 | 09 00 | | 0.076 | 0.200 | 0.020 | 0.005K | 0.005 |
| 74/06/18 | 08 50 | | 0.041 | 0.100K | 0.010 | 0.005K | 0.005 |

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/03/26

5103C1
36 55 35.0 080 44 50.0
BIG REED ISLAND CREEK
51 7.5 HIWASSEE
T/CLAYTOR LAKE
BRDG ON SEC RD 1 MI SW OF ALLISONIA
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 09 | 52 | 0.250 | 0.770 | 0.042 | 0.005K | 0.030 |
| 73/08/11 | 09 | 30 | 0.250 | 0.480 | 0.016 | 0.005K | 0.055 |
| 73/09/08 | 09 | 50 | 0.170 | 5.000 | 0.030 | 0.006 | 0.032 |
| 73/10/12 | 10 | 10 | 0.140 | 0.300 | 0.019 | 0.015 | 0.020 |
| 73/11/10 | 09 | 50 | 0.189 | 0.100K | 0.017 | 0.005K | 0.025 |
| 73/12/08 | 09 | 55 | 0.380 | 0.100 | 0.016 | 0.005K | 0.055 |
| 74/01/12 | 09 | 55 | 0.340 | 0.300 | 0.024 | 0.008 | 0.047 |
| 74/03/09 | 09 | 35 | 0.276 | 0.100 | 0.010 | 0.005K | 0.040 |
| 74/04/06 | 10 | 01 | 0.420 | 0.600 | 0.025 | 0.005 | 0.070 |
| 74/05/07 | 10 | 20 | 0.232 | 0.100K | 0.010 | 0.005K | 0.015 |
| 74/05/21 | 10 | 25 | 0.252 | 0.100K | 0.010 | 0.005K | 0.015 |
| 74/06/08 | 09 | 30 | 0.264 | 0.100 | 0.020 | 0.005K | 0.015 |
| 74/06/18 | 09 | 10 | 0.224 | 0.400 | 0.025 | 0.005K | 0.035 |

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/03/26

510301
36 55 40.0 080 44 55.0
LITTLE REED ISLAND CREEK
51 7.5 HIWASSEE
T/CLAYTON LAKE
BRDG ON SEC RD 1.25 MI SW OF ALLISONIA
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 10 00 | | 0.370 | 0.280 | 0.018 | 0.008 | 0.035 |
| 73/08/11 | 09 35 | | 0.380 | 0.640 | 0.008 | 0.014 | 0.020 |
| 73/09/08 | 10 00 | | 0.100 | 2.100 | 0.018 | 0.006 | 0.020 |
| 73/10/12 | 10 15 | | 0.315 | 0.275 | 0.027 | 0.018 | 0.030 |
| 73/11/10 | 09 55 | | 0.250 | 0.150 | 0.017 | 0.008 | 0.030 |
| 73/12/08 | 10 10 | | 0.480 | 0.100 | 0.012 | 0.016 | 0.060 |
| 74/01/12 | 10 01 | | 0.450 | 0.300 | 0.020 | 0.012 | 0.080 |
| 74/03/09 | 09 50 | | 0.440 | 1.500 | 0.050 | 0.010 | 0.055 |
| 74/04/05 | 10 10 | | 0.550 | 0.400 | 0.030 | 0.010 | 0.065 |
| 74/05/07 | 10 25 | | 0.224 | 0.100K | 0.005 | 0.005K | 0.025 |
| 74/05/21 | 10 30 | | 0.390 | 0.100K | 0.015 | 0.010 | 0.040 |
| 74/06/08 | 09 35 | | 0.336 | 0.200 | 0.025 | 0.005 | 0.075 |
| 74/06/18 | 09 45 | | 0.312 | 0.500 | 0.015 | 0.010 | 0.050 |

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/03/26

5103E1
36 56 17.0 080 47 35.0
PINE RUN
51 7.5 FOSTER FALLS
T/CLAYTON LAKE
BRDG ON RD 1.5 MI NNE OF BARREN SPRS STA
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 11 45 | | 0.870 | 0.500 | 0.022 | 0.005K | 0.020 |
| 73/08/11 | 10 05 | | 1.100 | 0.840 | 0.020 | | 0.020 |
| 73/09/08 | 10 45 | | 0.850 | 1.050 | 0.042 | 0.010 | 0.020 |
| 73/10/12 | 10 55 | | 0.740 | 0.150 | 0.020 | 0.015 | 0.015 |
| 73/11/10 | 10 25 | | 0.810 | 0.200 | 0.012 | 0.007 | 0.020 |
| 73/12/06 | 11 05 | | 0.870 | 0.100K | 0.005K | 0.008 | 0.035 |
| 74/01/12 | 11 00 | | 1.300 | 0.300 | 0.016 | 0.012 | 0.025 |
| 74/03/09 | 11 00 | | 1.010 | 0.200 | 0.005 | 0.005K | 0.020 |
| 74/04/06 | 11 03 | | 1.600 | 0.500 | 0.015 | 0.010 | 0.015 |
| 74/05/07 | 11 00 | | 0.820 | 0.100K | 0.005 | 0.005K | 0.010 |
| 74/05/21 | 11 15 | | 0.950 | 0.100 | 0.020 | 0.010 | 0.025 |
| 74/06/08 | 10 10 | | 0.910 | 0.300 | 0.025 | 0.010 | 0.040 |
| 74/06/18 | 09 45 | | 0.890 | 0.400 | 0.015 | 0.020 | 0.025 |

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/03/26

5103F1
37 02 46.0 080 43 00.0
PEAR CREEK
51 7.5 DUBLIN
T/CLAYTOR LAKE
BRDG ON US 81 1.5 MI N OF MCADAM
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00530 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 09 30 | | 0.570 | 2.100 | 0.033 | 0.073 | 0.185 |
| 73/08/12 | 14 30 | | 0.580 | 0.420 | 0.115 | 0.110 | 0.195 |
| 73/09/08 | 10 30 | | 0.850 | 0.480 | 0.250 | 0.180 | 0.470 |
| 73/10/12 | 08 30 | | 0.950 | 2.300 | 0.154 | 0.231 | 0.640 |
| 73/11/11 | 14 15 | | 1.240 | 1.050 | 0.231 | 0.330 | 0.500 |
| 74/01/12 | 09 25 | | 0.730 | 1.900 | 0.248 | 0.034 | 0.090 |
| 74/03/04 | 10 15 | | 1.200 | 0.800 | 0.155 | 0.110 | 0.265 |
| 74/04/06 | 10 55 | | 0.524 | 0.500 | 0.055 | 0.025 | 0.025 |
| 74/05/08 | 09 30 | | 0.890 | 0.500 | 0.150 | 0.135 | 0.240 |
| 74/06/08 | 10 40 | | 0.400 | 2.000 | 0.045 | 0.080 | 0.320 |

STORET RETRIEVAL DATE 75/03/26

510301
37 03 00.0 080 42 44.0
GOOSE CREEK
51 7.5 DUBLIN
T/CLAYTON LAKE
BANK ON RD 1.5 MI N OF MCADAM
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 10 15 | | 1.880 | 1.300 | 0.011 | 0.110 | 0.135 |
| 73/08/12 | 14 45 | | 1.520 | 0.190 | 0.032 | 0.058 | 0.075 |
| 73/09/08 | 10 00 | | 0.440 | 0.180 | 0.075 | 0.140 | 0.180 |
| 73/10/12 | 08 45 | | 1.920 | 0.200 | 0.026 | 0.027 | 0.040 |
| 73/11/11 | 14 45 | | 2.060 | 2.150 | 0.280 | | 0.020 |
| 74/01/12 | 10 00 | | 2.100 | 1.500 | 0.230 | 0.028 | 0.045 |
| 74/03/09 | 10 30 | | 2.200 | 0.460 | 0.035 | 0.020 | 0.055 |
| 74/04/06 | 11 05 | | 1.760 | 0.430 | 0.025 | 0.005 | 0.050 |
| 74/05/08 | 09 45 | | 1.760 | 0.430 | 0.025 | 0.015 | 0.030 |
| 74/06/04 | 11 00 | | 1.760 | 0.400 | 0.045 | 0.010 | 0.025 |

STORET RETRIEVAL DATE 75/03/26

5103M1
37 05 13.0 080 37 31.0
UNNAMED STREAM
51 7.5 DUBLIN
T/CLAYTON LAKE
BANK ON E US 81 .5 MI W OF MTN VIEW
11EPALES 2111204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P |
|---|---|---|---|---|---|---|---|
| 73/07/15 | 10 | 30 | 0.013 | 2.700 | 0.020 | 0.610 | 0.735 |
| 73/08/12 | 15 | 15 | 0.420 | 0.950 | 0.022 | 0.180 | 0.210 |
| 73/09/08 | 10 | 45 | 1.600 | 1.250 | 0.141 | 0.083 | 0.100 |
| 73/10/12 | 09 | 00 | 0.610 | 0.650 | 0.023 | 0.060 | 0.124 |
| 73/11/11 | 14 | 30 | 0.370 | 0.950 | 0.075 | 0.028 | 0.075 |
| 74/01/12 | 09 | 00 | 1.340 | 0.500 | 0.032 | 0.016 | 0.055 |
| 74/03/04 | 11 | 00 | 1.010 | 0.500 | 0.020 | 0.040 | 0.09[illegible] |
| 74/04/05 | 10 | 35 | 1.340 | 0.300 | 0.045 | 0.005K | 0.025 |
| 74/05/08 | 10 | 00 | 0.590 | 0.700 | 0.030 | 0.020 | 0.035 |
| 74/06/08 | 11 | 15 | 0.540 | 0.600 | 0.025 | 0.015 | 0.090 |

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/03/26

S103AA ST5103AA P000867
36 43 00.0 081 57 55.0
TOWN OF FRIES
51019 CARROLL CO MAP
T/CLAYTON LAKE
NEW RIVER
11EPALES 2141204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P | 50051 FLOW RATE INST MGD | 50053 CONDUIT FLOW-MGD MONTHLY |
|---|---|---|---|---|---|---|---|---|---|
| 73/10/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.042 | 32.000 | 14.000 | 7.200 | 9.600 | | 0.184 |
| 73/10/12 | 14 00 | | | | | | | | |
| 73/11/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.220 | 30.000 | 14.000 | 5.300 | 9.000 | | 0.184 |
| 73/11/12 | 14 00 | | | | | | | | |
| 73/12/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.040 | 27.000 | 6.900 | 4.100 | 6.500 | | 0.184 |
| 73/12/12 | 14 00 | | | | | | | | |
| 74/01/11 | 07 00 | | | | | | | | |
| CP(T)- | | | 1.040 | 19.300 | 8.900 | 3.800 | 6.100 | | 0.184 |
| 74/01/11 | 14 00 | | | | | | | | |
| 74/02/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.800 | 25.000 | 9.900 | 4.900 | 8.500 | | 0.184 |
| 74/02/12 | 14 00 | | | | | | | | |
| 74/03/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.040 | 26.000 | 14.000 | 5.150 | 8.100 | | 0.184 |
| 74/03/12 | 14 00 | | | | | | | | |
| 74/04/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.280 | 13.000 | 8.700 | 3.500 | 4.800 | | 0.184 |
| 74/04/12 | 14 00 | | | | | | | | |
| 74/05/13 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.160 | 24.000 | 8.700 | 4.100 | 7.400 | | 0.184 |
| 74/05/13 | 14 00 | | | | | | | | |
| 74/06/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.160 | 32.500 | 15.770 | 5.225 | 7.025 | | 0.184 |
| 74/06/12 | 14 00 | | | | | | | | |
| 74/07/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.080 | 33.000 | 14.500 | 5.800 | 8.500 | | 0.184 |
| 74/07/12 | 14 00 | | | | | | | | |
| 74/08/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.050 | 27.000 | 14.500 | 4.600 | 6.500 | | 0.184 |
| 74/08/12 | 14 00 | | | | | | | | |
| 74/09/12 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.280 | 21.000 | 5.900 | 2.400 | 3.450 | | 0.184 |
| 74/09/12 | 14 00 | | | | | | | | |

STORET RETRIEVAL DATE 75/03/26

5103AA ST5103AA P000867
36 43 00.0 081 57 55.0
TOWN OF FRIES
51019 CARROLL CO MAP
T/CLAYTON LAKE
NEW RIVER
11EPALES 2141204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3-N TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P | 50051 FLOW RATE INST MGD | 50053 CONDUIT FLOW-MGD MONTHLY |
|---|---|---|---|---|---|---|---|---|---|
| 74/10/10 | 07 00 | | | | | | | | |
| CP(T)- | | | 0.120 | 30.000 | 17.300 | 5.400 | 6.900 | | 0.184 |
| 74/10/10 | 14 00 | | | | | | | | |

STORET RETRIEVAL DATE 75/03/26

5103FA TF5103FA 0210500
37 02 55.0 080 46 00.0
TOWN OF PULASKI
51 7.5 PULASKI
T/CLAYTON LAKE
PEAK CREEK/NEW RIVER
11EPALES 2141204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH Feet | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P | 50051 FLOW RATE INST MGD | 50053 CONDUIT FLOW-MGD MONTHLY |
|---|---|---|---|---|---|---|---|---|---|
| 73/10/02 | 06 00 | | | | | | | | |
| CP(T)- | | | 4.300 | 7.800 | 0.630 | 2.310 | 3.300 | 2.400 | 0.800 |
| 73/10/02 | 15 00 | | | | | | | | |
| 73/11/30 | 06 00 | | | | | | | | |
| CP(T)- | | | 3.000 | 9.700 | 0.040K | 2.800 | 4.600 | 2.300 | 1.280 |
| 73/11/30 | 15 00 | | | | | | | | |
| 73/12/31 | 06 00 | | | | | | | | |
| CP(T)- | | | 1.520 | 7.800 | 0.145 | 2.090 | 3.300 | 1.940 | 1.820 |
| 73/12/31 | 15 00 | | | | | | | | |
| 74/01/31 | 06 00 | | | | | | | | |
| CP(T)- | | | 0.800 | 9.600 | 0.430 | 2.600 | 5.600 | 2.040 | 1.950 |
| 74/01/31 | 15 00 | | | | | | | | |
| 74/02/28 | 06 00 | | | | | | | | |
| CP(T)- | | | 0.720 | 9.400 | 0.630 | 2.500 | 4.200 | 1.720 | 1.840 |
| 74/02/28 | 15 00 | | | | | | | | |
| 74/04/01 | 06 00 | | | | | | | | |
| CP(T)- | | | 0.760 | 4.600 | 0.425 | 3.500 | 4.800 | 1.480 | 1.480 |
| 74/04/01 | 15 00 | | | | | | | | |
| 74/05/01 | 06 00 | | | | | | | | |
| CP(T)- | | | 2.640 | 18.600 | 2.800 | 4.500 | 5.900 | 1.340 | 1.530 |
| 74/05/01 | 15 00 | | | | | | | | |
| 74/06/03 | 06 00 | | | | | | | | |
| CP(T)- | | | 1.120 | 16.000 | 3.800 | 6.600 | 8.000 | 1.220 | 1.370 |
| 74/06/03 | 15 00 | | | | | | | | |
| 74/07/01 | 06 00 | | | | | | | | |
| CP(T)- | | | 1.000 | 1.900 | 1.900 | 3.400 | 5.300 | 1.400 | 1.200 |
| 74/07/01 | 15 00 | | | | | | | | |
| 74/08/01 | 06 00 | | | | | | | | |
| CP(T)- | | | 0.350 | 22.000 | 4.200 | 7.500 | 9.600 | 0.868 | 1.000 |
| 74/08/01 | 15 00 | | | | | | | | |
| 74/09/02 | 06 00 | | | | | | | | |
| CP(T)- | | | 1.350 | 21.000 | 10.500 | 9.200 | 11.000 | 0.876 | 0.945 |
| 74/09/02 | 15 00 | | | | | | | | |
| 74/10/01 | 06 00 | | | | | | | | |
| CP(T)- | | | 4.000 | 19.000 | | 9.100 | 10.500 | 1.060 | 1.180 |
| 74/10/01 | 15 00 | | | | | | | | |

K VALUE KNOWN TO BE LESS THAN INDICATED

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STORET RETRIEVAL DATE 75/03/26

5103FA TF5103FA P010500
37 02 55.0 080 46 00.0
TOWN OF PULASKI
51 7.5 PULASKI
T/CLAYTOR LAKE
PEAK CREEK/NEW RIVER
11EPALES 2141204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P | 50051 FLOW RATE INST MGD | 50053 CONDUIT FLOW-MGD MONTHLY |
|---|---|---|---|---|---|---|---|---|---|
| 74/11/01 | 06 00 | | | | | | | | |
| CP(T)- 74/11/01 | 15 00 | | 0.240 | 14.000 | 9.300 | 7.700 | 9.000 | 1.900 | 1.120 |

STORET RETRIEVAL DATE 76/01/12

5103XA TFS103XA
36 40 00.0 080 56 00.0
CITY OF GALAX
51640 7.5 GALAX
T/CLAYTOR LAKE
CHESTNUT CREEK
11EPALES 2141204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P | 50051 FLOW RATE INST MGD | 50053 CONDUIT FLOW-MGD MONTHLY |
|---|---|---|---|---|---|---|---|---|---|
| 74/04/29 | 11 00 | | | | | | | | |
| CP(T)- | | | 0.320 | 21.000 | 5.000 | 6.700 | 7.800 | 1.200 | 1.200 |
| 74/05/18 | 16 00 | | | | | | | | |
| 74/05/20 | 11 00 | | | | | | | | |
| CP(T)- | | | 1.680 | 19.000 | 3.100 | 5.300 | 6.700 | | 1.300 |
| 74/06/10 | 16 00 | | | | | | | | |
| 74/06/24 | 11 00 | | | | | | | | |
| CP(T)- | | | 0.200 | 20.000 | 4.400 | 5.500 | 7.000 | 1.200 | 1.000 |
| 74/07/01 | 16 00 | | | | | | | | |
| 74/07/15 | 11 00 | | | | | | | | |
| CP(T)- | | | 0.280 | 19.000 | 3.150 | | 7.000 | 0.800 | 0.800 |
| 74/08/05 | | | | | | | | | |
| | 11 00 | | | | | | | | |
| CP(T)- | | | 0.080 | 17.000 | 0.150 | 0.210 | 6.400 | 1.000 | 1.300 |
| 74/08/19 | 16 00 | | | | | | | | |
| | 11 00 | | | | | | | | |
| CP(T)- | | | 0.480 | 16.500 | 3.900 | 6.050 | 7.100 | 0.900 | 0.900 |
| 74/09/09 | 16 00 | | | | | | | | |
| | 11 00 | | | | | | | | |
| CP(T)- | | | 0.340 | 13.000 | 1.500 | 5.225 | 5.750 | 1.000 | 0.900 |
| 74/09/30 | 16 00 | | | | | | | | |
| | 10 30 | | | | | | | | |
| CP(T)- | | | 0.480 | 13.500 | 1.500 | 5.750 | 5.750 | 1.000 | 0.900 |
| 74/10/21 | | | | | | | | | |
| 74/10/28 | 11 00 | | | | | | | | |
| CP(T)- | | | 0.400 | 16.000 | 1.900 | 5.250 | 5.900 | 1.100 | 1.200 |
| 74/11/11 | 16 00 | | | | | | | | |
| 74/11/20 | 11 00 | | | | | | | | |
| CP(T)- | | | 8.800 | 15.000 | 5.200 | 6.100 | 6.300 | 1.200 | 1.300 |
| 74/12/02 | 16 00 | | | | | | | | |

STORET RETRIEVAL DATE 75/03/26

5103YA P05103YA P000200
36 38 15.0 081 08 40.0
TOWN OF INDEPENDENCE
51 GRAYSON CO
T/CLAYTOR LAKE
REACH BOHOM CREEK
11EPALES 2141204
4 0000 FEET DEPTH

| DATE FROM TO | TIME OF DAY | DEPTH FEET | 00630 NO2&NO3 N-TOTAL MG/L | 00625 TOT KJEL N MG/L | 00610 NH3-N TOTAL MG/L | 00671 PHOS-DIS ORTHO MG/L P | 00665 PHOS-TOT MG/L P | 50051 FLOW RATE INST MGD | 50053 CONDUIT FLOW-MGD MONTHLY |
|---|---|---|---|---|---|---|---|---|---|
| 73/12/03 | 09 | 30 | 0.200 | 15.000 | 0.260 | 27.000 | 32.000 | 0.101 | |
| 73/12/31 | 08 | 40 | 0.200 | 18.500 | 0.100 | 22.000 | 24.500 | 0.101 | |
| 74/01/23 | 09 | 30 | 0.360 | 15.500 | 2.900 | 24.000 | 25.000 | 0.102 | 0.102 |
| 74/01/24 | 09 | 20 | 0.120 | 34.000 | 1.920 | 22.000 | 26.300 | 0.177 | 0.139 |
| 74/02/14 | 09 | 20 | 0.080 | 15.000 | 0.330 | 19.500 | 24.000 | 0.101 | 0.139 |
| 74/02/27 | 10 | 25 | 0.080 | 17.000 | 0.530 | 19.500 | 26.000 | 0.086 | 0.093 |
| 74/03/21 | 09 | 40 | 0.160 | 14.000 | 1.250 | 23.000 | 25.000 | 0.177 | 0.131 |
| 74/04/01 | 11 | 20 | 0.040 | 16.000 | 0.087 | 18.000 | 23.000 | 0.136 | 0.156 |
| 74/04/03 | 14 | 55 | 0.040 | 4.050 | 0.110 | 16.500 | 22.000 | 0.101 | 0.118 |
| 74/05/29 | 11 | 15 | 0.040 | 29.000 | 3.400 | 22.500 | 31.300 | 0.072 | 0.087 |
| 74/06/24 | 08 | 20 | 0.625 | 31.000 | 9.700 | 24.000 | 34.500 | 0.049 | 0.061 |
| 74/07/18 | 11 | 20 | 3.400 | 19.000 | 1.900 | 31.000 | 32.000 | 0.049 | 0.049 |